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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,461	12/21/2001	John A. Dispenza	129250-001049/US	5477

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EXAMINER	
LIN, KUANG Y	

ART UNIT	PAPER NUMBER
1793	

MAIL DATE	DELIVERY MODE
06/17/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/029,461	DISPENZA ET AL.	
	Examiner	Art Unit	
	Kuang Y. Lin	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 May 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-12,14-16,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-12,14-16,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4, 6-8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,344,477 to Miki et al. and further in view of US 5,040,589 to Bradley et al.

Miki et al. substantially show (see, col. 1, lines 24-35) the invention as claimed except that they do not show to rheocast Mg alloy to unite the conductive core object. However, it is a common knowledge that Mg alloy possesses high thermal conductivity, it would have been obvious to use Mg alloy as a cast material for forming the fins of the heat exchanger of Miki et al. Further, Bradley et al. show that it is desirable to rheocast Mg alloy, instead of die casting of molten Mg alloy, such that to reduce the energy consumption, increase the die

service life, etc. (see col. 1, lines 10-51). It would have been obvious to use the semi-solid Mg alloy of Bradley et al. as a casting material in the process of making heat exchanger of Miki et al. in view of the advantage. With respect to claims 3 and 4, it would have been obvious to obtain the optimal composition and process parameters for forming the fins through routine experimentation.

4. Claims 9-12, 14-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,344,477 to Miki et al. and further in view of US 5,040,589 to Bradley et al. as applied to claim 1 above, and further in view of JP 6-292,944.

JP 6-292,944 show to continuous cast articles by using a use a continuous casting machine, which consists of two series of die plates, such that to speed up the casting process. It would have been obvious to use the continuous casting machine of JP '944 for forming the heat exchanger of Miki et al. in view of the advantage. With respect to claims 11 and 12, it would have been obvious to obtain the optimal composition and process parameters for forming the fins through routine experimentation.

5. Applicant's arguments filed May 22, 2009 have been fully considered but they are not persuasive.

a. Applicant in page 7, 3rd para. of the response stated that neither Miki nor Bradley disclose the feature of "substantially simultaneously form the fins and form a contact area that provides a substantially continuous void free interface between a core object and a metal slurry" as in claim1. However, When the semi-solid magnesium alloy of Bradley is used in the process of Miki for making

the heat exchanger, it is expected to form the fins substantially simultaneously and to have a substantially void free interface between the core and the metal slurry since the semi-solid slurry of Bradley is also injected into the mold cavity of Miki to unite the core perform. Since the process of Miki, as modified, is the same process as the instant application, the result of that process will be the same as that of instant application. Further, the expressions of "**substantially** simultaneously" and "**substantially** void free" are qualitative expressions. Thus, the modified process of Miki is considered to form the fins substantially simultaneously and to have a substantially void free interface between the core and the metal slurry even if the solidification process of Miki is some what different from that of instant process.

b. Applicant in page 8 2nd para. of the response stated that the Examiner has not articulated any rational underpinnings to support a motivation to combine Miki and Bradley and cited *KSR international Co. v. Teleflex, Inc.* to support his argument. However, the Examiner did state that the process of Bradley reduces the energy consumption and increase the die service life, etc. It would have been obvious to use the semi-solid Mg alloy of Bradley et al. as a casting material in the process of making heat exchanger of Miki et al. in view of the advantage. Further, applicant apparently misinterpreted *KSR international Co. v. Teleflex, Inc.* The decision actually stated that "**Rigid application of "teaching, suggestion, or motivation" test**, under which patent claim is proved obvious only if prior art, nature of problem addressed by inventor, or knowledge of person

having ordinary skill in art reveals some motivation or suggestion to combine prior art teachings, **is inconsistent** with expansive and flexible "functional approach" to resolution of obviousness issue, under which scope and content of prior art are determined, differences between prior art and claims at issue are ascertained, level of ordinary skill in pertinent art is resolved, and secondary considerations such as commercial success, long felt but unsolved needs, and failure of others may be considered if doing so would prove instructive; rigid TSM approach is therefore rejected." and that "Variations of particular work available in one field of endeavor may be prompted by design incentives and other market forces, either in same field or different one, and if person of ordinary skill in art can implement **predictable variation**, 35 U.S.C. §103 likely bars its patentability". Thus, applicant's argument was not meritorious.

c. Applicant in pages 8-9 of the response stated that one skilled in the art would not have been motivated to combine the teachings of Miki and Bradley because the higher viscosity metal would have less flowability in forming intimate contact to create the interface with the object. However, it is a known practice to inject semi-solid slurry into a casting die to unite to a preform object (see, for example, col. 3, lines 18-65, col. 6, lines 28-40 and examples 1-6 of US 5,775,403 to Premkumar et al.) Thus, to use a thixotropic metal in the process of Miki to unite to a preform object is deemed to be obvious to those of ordinary skill in the casting art and the **successful result is predictable**.

d. In view of newly cited reference (JP '944), applicant's argument with respect to the rejection to claims 9-12, 14-16 and 20 as appearing in pages 11-12 of the response is moot.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica L. Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kuang Y. Lin/
Primary Examiner, Art Unit 1793

6-16-09